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Food Security in the Gila Valley

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Introduction

As many as 17% of meals are missing from the diets of Arizonans struggling with hunger, poverty and food insecurity according to data released by the Association of Arizona Food Banks (AAFB), in conjunction with St. Mary's Food Bank Alliance, and Feeding America (Feeding America, 2019). These missing meals are what would allow every individual in Arizona to eat three meals per day but are instead being skipped and not eaten because those affected cannot afford them.

Food insecurity refers to the US Department of Agriculture's measure of lack of access to enough food for an active, healthy life for all household members and the limited or uncertain availability of nutritionally adequate foods. Food insecure households are not necessarily food insecure all the time and may be influenced by a household's need to make trade-offs between important basic needs, such as housing or medical bills, and purchasing nutritionally adequate foods.

Nearly 12% of U.S. households were food insecure in 2017, according to a U.S. Department of Agriculture study (USDA, 2017) This statistic includes 4.5% that were very food insecure, meaning at least one member of the household had to reduce or change eating patterns because of lack of money or other resources to obtain food. Overall, US food insecurity has declined from the high of 14.9% in 2011, to 12% in 2017. However, there were still more than 40 million Americans, including 12.5 million children who were food insecure in 2017.

Food Insecurity in the Gila Valley

The gains in food security at the US level are not mirrored at the state or county level in Arizona. The latest Feeding America (2019) study estimates that in Arizona, 14.0% of the population is food insecure, an estimated 979,170 persons or 1 in 6 individuals. The impact of food insecurity falls disproportionately on the "working poor," a group comprised of those living at or below 185% of the Federal Poverty Level (FPL). A staggering 1 in 3 Arizonans, out of an estimated 6.36 million population, are designated as working poor. According to AAFB, Greenlee County (26.9%), Yavapai County (23.4%) and Pima County (20.7%) have the highest percentage for the working poor.

The literature focuses primarily on the relationships between hunger and health and between hunger and child development. Hunger and health are deeply connected. In fact, "People who are food insecure are disproportionately affected by diet-sensitive chronic diseases such as

diabetes and high blood pressure, and according to research, food insecurity is also linked to many adverse effects to overall health (Feeding America, 2019). ” For children, food insecurity is particularly devastating. Specifically, not having enough healthy food can have serious implications for a child’s physical and mental health, academic achievement and future economic prosperity. Research in the 2019 Feeding America report (Feeding America, 2019) state that there is “an association between food insecurity and delayed development in young children; risk of chronic illnesses like asthma and anemia; and behavioral problems like hyperactivity, anxiety and aggression in school-age children.” According to the same research, 15.5% of the Graham County population is food insecure, and almost one fourth of all children are food insecure (24.9%.) The food insecure population of Greenlee County is lower than that of Graham County for both measures, overall 11.6% of the population is food-insecure while 19.5% of children are considered food-insecure.

Studying Food-Insecurity in the Gila Valley

The Economic Policy Institute (EPI) at Northern Arizona University (NAU) and the Local First Arizona Foundation teamed together to study the prevalence and severity of food insecurity in the Gila Valley, defined as Graham and Greenlee counties and Southeastern Gila County, in Arizona. The region includes the towns of Bylas on the San Carlos Apache Reservation, Fort Thomas, Safford, Thatcher, Morenci, Clifton, and Duncan. Food security programs for this region are served by Community Food Bank of Southern Arizona located in Tucson.

In order to measure food security in the region the study collected primary data on food consumption and food shopping from residents. Obtaining survey data from households required cooperation from program providers and food-security community networks in the region. The survey was developed with the intent to measure food security in the population using questions from the modified U.S. Adult Food Security 10-Item Survey (USDA, 2017). Two survey methods were used, a paper and an electronic survey. The two surveys were created by staff at the EPI, in collaboration with Local First, and community partners. Once the survey had been modified to meet the needs of the partners it was distributed to local organizations and agencies by Local First personnel.

A total of 399 useable surveys were obtained during the study period which ran from October to December 2020. The paper surveys were collected at the local food pantry “Our Neighbors Farm and Pantry” as well as the Graham County Health Department and the Graham County

Chamber of Commerce. Paper surveys were also collected at the San Carlos Unified School District and San Carlos Social Services. Electronic surveys were posted on the Local First Face Book page, and distributed by other partners Freeport-McMoRan, United Way of Graham & Greenlee County. The survey partners worked hard to get the questionnaires into the hands of a cross section of the population of the three counties. A total of 399 useable survey were collected from respondents. The surveys were split roughly two-thirds (61.4%) electronic surveys collected by NAU in Qualtrics and 38.6% paper surveys collected by partners and mailed to NAU. The survey returns can be found in Table 1.

Table 1. Distribution of questionnaires by type

**Gila Valley Food Security Study
Distribution of questionnaires by type**

	Count	Percent (%)
E Survey	245	61.4%
Paper Survey	154	38.6%
Total	399	100.0%

Geographic Description of the Sample

The Gila Valley as determined by Local First for this study covers three Arizona counties, southeastern Gila County including the San Carlos Apache Tribe reservation, as well as Graham and Greenlee counties. Almost all the respondents to the Food Security survey came from Graham County (93.3%), while southeastern Gila County had the next largest representation in the survey, accounting for 3.4% of all responses. Greenlee County residents accounted for the remaining 3.4%. See Table2.

Table 2. In what Arizona County do you live?

**Gila Valley Food Security Study
In what Arizona County do you live?**

	Count	Percent (%)
Gila	361	93.3%
Graham	13	3.4%
Greenlee	13	3.4%
Total	387	100.0%

Together Safford, Thatcher, and Pima account for 89.4% of all respondents which have 62.0%, 17.8% and 9.6% respectively.. These responses are based on the zip codes provided by respondents. See Table 3.

Table 3. In what Gila Valley community do you live?

**Gila Valley Food Security Study
In what community do you live based on zip codes?**

	Count	Percent (%)
Safford	240	62.0%
Thatcher	69	17.8%
Pima	37	9.6%
Central	8	2.1%
Duncan	6	1.6%
Morenci	5	1.3%
Solomon	4	1.3%
San Carlos	3	1.3%
Fort Thomas	3	0.8%
Bylas	3	0.8%
Globe	2	0.5%
Clifton	2	0.5%
Turkey Creek	2	0.5%
Peridot	2	0.5%
Claypool	1	0.3%
Total	387	100.0%

The total population of the region defined by the Gila Valley in this study is 49,527 based on the Census Zip Code Tabulation Areas (ZCTA). This population count does not include Globe, Payson, Pine and Tonto Basin as these communities were not included in the definition of the Gila Valley. Safford, Thatcher and San Carlos have the largest populations, in Graham County, while Morenci has the largest population in Greenlee County. Peridot which is split between Gila and Graham counties has the largest population in the Gila County portion of the survey region. See Table 4.

Table 4. Zip codes and populations in the Gila Valley

County	Zip Code	Town	Population
Gila	85542	Peridot	3,196
Gila	85532	Claypool	1,278
Graham	85546	Safford	19,677
Graham	85552	Thatcher	6,218
Graham	85543	Pima	3,822
Graham	85531	Central	623
Graham	85534	Duncan	2,588
Graham	85551	Solomon	405
Graham	85550	San Carlos	4,790
Graham	85336	Fort Thomas	408
Graham	85530	Bylas	2,069
Graham	85533	Clifton	2,943
Greenlee	85540	Morenci	1,510
			49,527

Household Demographics

The following section of the study outlines the demographic profile of the survey respondents, focusing on age, gender, ethnicity, education and household income. To begin, the sample is strongly weighted towards females (73.3%) compared to males (26.7%). Females were more likely fill out the survey than males. See Table 5.

Table 5. Gender of survey respondents

Gila Valley Food Security Study
Gender

	Count	Percent (%)
Male	95	26.7%
Female	261	73.3%
Total	356	100.0%

In terms of age, the survey respondents tended to be older, the average (mean) age was 61 years and the median (the point at which 50% of the sample is above and below) is 62 years of age. In terms of age ranges, the sample is strongly weighted towards older respondents. Respondents under age 25 account for 3.5% of the sample, while those between 26 and 40 years of age account for a further 11.7%. Respondents who are between the ages of 41 and 55 account for one-fifth (21.2%) of the sample. Overall, 41.7% of respondents are over 65 years of age. See Table 6.

Table 6. Age of survey respondents

Gila Valley Food Security Study

Age

	Count	Percent (%)
18 and under	4	1.2%
19 - 25 years	8	2.3%
26 - 30 years	9	2.6%
31 - 35 years	15	4.4%
36 - 40 years	16	4.7%
41 - 45 years	19	5.5%
46 - 50 years	19	5.5%
51 - 55 years	35	10.2%
56 - 60 years	39	11.4%
61 - 65 years	35	10.2%
66 - 70 years	30	8.7%
71 - 75 years	29	8.5%
76 years and older	85	24.8%
Total	343	100.0%

Men, although a smaller part of the sample, account for the largest portion of the oldest cohort. Men account for 34.5% of those seventy six years or older compared to women (22.2%) for the same cohort. With the exception of those 76 and older the sample is balanced relative to the age distributions between males and females. See Table 7.

Table 7. Gender by age of survey respondents

Gila Valley Food Security Study
Gender by age of respondents?

	Gender of respondent	
	Male	Female
	Percent (%)	Percent (%)
18 and under	0.0%	1.6%
19 - 25 years	2.3%	2.4%
26 - 30 years	3.4%	2.4%
31 - 35 years	4.6%	4.4%
36 - 40 years	4.6%	4.0%
41 - 45 years	3.4%	6.5%
46 - 50 years	6.9%	4.8%
51 - 55 years	8.0%	10.1%
56 - 60 years	9.2%	11.7%
61 - 65 years	6.9%	11.7%
66 - 70 years	9.2%	8.9%
71 - 75 years	6.9%	9.3%
76 years and older	34.5%	22.2%
Total	100.0%	100.0%

Three-fourths of all respondents (76.0%) identify themselves as White/Caucasian, The Hispanic/Latino population is well represented (30%) as the 2018 ACS 5 Year Estimates from the Census Bureau states that the Hispanic/Latino account for 39.2% of the Graham County population which supplies 58.9% of responses See Table 8.

Table 8. Which of the following ethnic groups do you identify with?

Gila Valley Food Security Study
Which one or more of the following ethnic groups do you identify with?

	Count	Percent (%)
White/Caucasian	266	76.0%
Hispanic/Latino	105	30.0%
American Indian/Alaska Native	13	3.7%
Black/African American	4	1.1%
Don't know	4	1.1%
Asian	2	0.6%
Hawaiian/Pacific Islander	2	0.6%

Does not sum to 100% multiple responses allowed

In terms of education the sample has a high, percentage of college graduates (42.5%) compared to Arizona at 29.5% overall (ACS, 2015-2019), and a further one-fourth of respondents have some college but no degree. See Table 9.

Table 9. What is the highest level of education you have completed?

Gila Valley Food Security Study
What is the highest level of education you have completed?

	Count	Percent (%)
Some high school	28	8.0%
High school graduate / GED	65	18.7%
Vocational / Trade school certificate	13	3.7%
Some college, no degree	94	27.0%
Completed a college degree	148	42.5%
Total	348	100.0%

A majority (57.1%) of householders are employed, while more than one-third (38.1%) of householders are retired. A further one-fifth (20.7%) are currently unemployed, while 18.5% are students and 17.6% are full time homemakers or stay at home parents. See Table 10.

Table 10. Employment status of your household

Gila Valley Food Security Study
Employment status in your household is any one:

	Count	Percent (%)
Currently employed	201	57.1%
Retired	134	38.1%
Currently unemployed	73	20.7%
Student	65	18.5%
Full time homemaker/stay at home parent	62	17.6%

Does not sum to 100% as multiple responses are allowed

The weighted average annual household income (derived from mid-points) for the sample is \$57,119. This weighted average is pulled upward by the nearly one-fifth (18.7%) of the sample with annual household incomes of \$90,000 or more. More than half the sample (57%) make less than \$49,999. See Table 11.

Table 11. Annual household income before taxes

Gila Valley Food Security Study
Annual household income before taxes?

	Count	Percent (%)
Less than \$30,000	126	36.8%
\$30,000 - \$49,999	69	20.2%
\$50,000 - \$69,999	50	14.6%
\$70,000 - \$89,999	33	9.6%
\$90,000 - \$109,999	24	7.0%
\$110,000 or more	40	11.7%
Total	342	100.0%

Two person households (30.3%) comprise the single largest household cohorts. Households with at least three persons account for 60.8% of the sample, 16.4% single person households, followed by 30.3% two person households and a further 14.1% three person households. Household size may have some impact on food security when coupled with household income. See Table 12. Adult only households (53.5%) are the majority in the survey. Households with children (46.5%) may be more affected by food security issues than adult only households. See Table 13.

Table 12. How many people live in your household?

Gila Valley Food Security Study
How many people live in your household?

	Count	Percent (%)
One person	65	16.4%
Two people	120	30.3%
Three people	56	14.1%
Four people	57	14.4%
Five people	45	11.4%
Six to ten people	53	13.4%
Total	396	100.0%

Table 13. Household composition?

Gila Valley Food Security Study
Household composition

	Count	Percent (%)
Adult only households	212	53.5%
Adults, with children in household	184	46.5%
Total	396	100.0%

Food Purchasing Activities

The next section of the study analyzes the basic household food purchasing activities of the sample. This section focuses on the distance traveled to make food purchases, which community food purchases are made in, what local shops food purchases are made at, and average monthly grocery purchases. The final portion of this section will focus on the percent of local purchases, and characteristics that determine what food is purchased.

The average (mean) distance that respondents travel to purchase basic household food supplies is 6 miles, while the median distance traveled is 5 miles. The farthest distance is 67 miles. See Table 14.

When considering where respondents live and where they shop, those living in Bylas on the San Carlos Apache Reservation travel and average 39 miles to shop for basic household purchases. Duncan households travel and average of 30 miles to make basic household purchases. Respondents living in Clifton, Morenci and Thatcher travel the least. See Table 15.

Table 14. How far do you travel for basic household purchases?

	Count	Percent (%)
Less than 5 miles	207	63.9%
Between 6 and 10 miles	79	24.4%
Between 11 and 15 miles	23	7.1%
Between 16 and 20 miles	4	1.2%
Between 21 and 25 miles	2	0.6%
More than 25 miles	9	2.8%
Total	324	100.0%

Table 15. Where do you live by how far do you travel for basic household purchases?

Gila Valley Food Security Study
Where do you live by how far do you
travel for basic household purchases?

Miles traveled

	Mean
Bylas	39
Duncan	30
Fort Thomas	23
San Carlos	13
Pima	12
Solomon	8
Central	6
Safford	6
Turkey Creek	5
Clifton	5
Morenci	5
Thatcher	4

One-fifth (22%) of respondents travel outside of their county to purchase food supplies, the balance do not travel outside the county (78%). See Table 16. A majority (63%) of Greenlee County residents travel outside their county to buy food supplies. One fourth of Graham County residents travel outside of the county to purchase food supplies.. See table 17.

Table 16. Do you travel outside your county to buy food supplies?

Gila Valley Food Security Study
Do you travel outside your county to buy
food supplies?

	Count	Percent (%)
Yes	84	22.0%
No	298	78.0%
Total	382	100.0%

Table 17. Do you travel outside your county to buy food supplies by county of residence?

Gila Valley Food Security Study
Do you travel outside your county to buy
food supplies?

	In what Arizona County do you live?		
	Gila Percent (%)	Graham Percent (%)	Greenlee Percent (%)
Yes	12.8%	25.0%	63.2%
No	87.2%	75.0%	36.8%
Total	100.0%	100.0%	100.0%

One-third of those who travel outside the county to purchase food supplies travel almost every month (36.5%). Two-fifths of those traveling out of town for food supplies travel alternative months, but not every month (41.2%). The remaining one-fifth (22.4%) travel out of their county sporadically, one or two months a year.

Table 18. How often do you travel outside your county to buy food supplies?

Gila Valley Food Security Study
How often do you travel outside your county to buy food supplies?

	Count	Percent (%)
Almost every month	31	36.5%
Some months but not every month	35	41.2%
Only 1 or 2 months a year	19	22.4%
Total	85	100.0%

Food Purchasing Behavior and Choices

The vast majority of respondents (86.7%) do their major food shopping in Safford, followed by Thatcher (45.6%). Tucson (8.9%) and other (3.4%), which is not defined and Morenci (2.3%) are the only where the majority of respondents do their major food shopping. No other community captures more than 2% of shopping activity. See Table 19.

Table 19. In what community do you do your major food shopping?

**Gila Valley Food Security Study
In what community do you do your
major food shopping?**

	Count	Percent (%)
Safford	333	86.7%
Thatcher	175	45.6%
Tucson	34	8.9%
Other	13	3.4%
Morenci	9	2.3%
Globe	7	1.8%
Duncan	4	1.0%
Clifton	3	0.8%
Miami	2	0.5%
Peridot	2	0.5%
Claypool	1	0.3%
San Carlos	1	0.3%
Ft. Thomas	1	0.3%

Does not sum to 100% as multiple responses are allowed

Respondents shopping locally go to Walmart (73.5%), followed closely by Safeway (69.6%) and Basha’s (65.7%). A smaller number make use of the food pantry (34.3%). Smaller numbers of respondents shop at Chain Dollar Stores (20.9%), or online (18.3%). Less use is made of local non-chain supermarkets (14.9%), local farmers markets/coops (11.3%) or convenience store /gas stations (9.8%). See Table 20.

Table 20. Where do you shop for food supplies locally?

Gila Valley Food Security Study
Where do you shop for food supplies locally?

	Count	Percent (%)
Walmart	285	73.5%
Safeway	270	69.6%
Basha's	255	65.7%
Food Pantry	133	34.3%
Chain Dollar Stores	81	20.9%
Online	71	18.3%
Local non-chain supermarket	58	14.9%
Local farmers market/co-op	44	11.3%
Convenience Store/Gas Station	38	9.8%

Does not sum to 100% as multiple responses are allowed

Respondents were asked to estimate the average amount they spend a month on groceries for their household. The average (mean) monthly spending on groceries is \$385 per household, while the median is \$300 a month. Despite the relatively high expenditures evidenced by the mean, almost one-third (31.9%) of households spend \$200 or less on monthly groceries. Household size appears to affect average expenditures very much. Households spending \$300 or less have an average of 3 members in the household those spending between \$300 and \$800 have an average of 4 or 5 members in their households. See Table 21.

Table 21. What is the average amount you spend per month on groceries for your household?

Gila Valley Food Security Study
What is the average amount you spend a month on groceries for your household?

	Count	Percent (%)
Less than \$100	41	13.1%
\$101 to \$200	59	18.8%
\$201 to \$300	71	22.6%
\$301 to \$400	54	17.2%
\$401 to \$500	39	12.4%
\$501 to \$600	26	8.3%
\$601 to \$700	4	1.3%
\$701 to \$800	9	2.9%
\$801 to \$900	3	1.0%
\$901 to \$1,000	4	1.3%
\$1,000 or more	4	1.3%
Total	314	100.0%

Respondents were also asked to estimate what percentage of their food purchases were made in the Gila Valley or outside. A majority (80.1%) of respondents indicate that they make 90 to 100 percent of their food purchases in the Gila Valley. A minority 7% make between 50 and 90% of their food purchases outside of the Gila Valley. It would appear from this question that respondents shop locally for food purchases. See Table 22.

Table 22. What percent of food purchases are made in the Gila Valley?

Gila Valley Food Security Study
What percent of food purchases are
made in the Gila Valley?

	Count	Percent (%)
10	6	2.1%
20	2	0.7%
30	2	0.7%
40	4	1.4%
50	6	2.1%
60	4	1.4%
70	10	3.5%
80	22	7.8%
90	63	22.3%
100	163	57.8%
Total	282	100.0%

Residents of the Gila Valley were asked to pick from a list of characteristics that were important to determine what food they purchased. Overall cost of foods, a good price for the amount of food you get (80.8%) was by far the most important food purchasing criteria for residents. Overall cost was followed by health and nutrition considerations (55.2%). Habit/Taste (47.7%) was nearly as important as health and nutrition, and was followed by favorite brand and ease of preparation (28.5% and 28.3%, respectively). Of less importance, are locally grown foods (19.7%), organic or naturally grown (13.1%), and pressure from children and family members is the lowest determinant (8.0%). See Table 23.

Table 23. What are the three top things that determine what food you purchase?

Gila Valley Food Security Study
What are the top three things that determine what food you purchase?

	Count	Percent (%)
Good price for the amount you get (overall costs)	303	80.8%
Health and nutrition	207	55.2%
Habit/Taste	179	47.7%
Favorite brand	107	28.5%
Ease of preparation	106	28.3%
Locally grown	74	19.7%
Organic/naturally grown	49	13.1%
Pressure from children and family	30	8.0%
Total	375	100.0%

Does not sum to 100% because of multiple responses

Food Assistance

Residents were also asked if they received any food assistance. The programs that respondents were asked to choose from were WIC, Food Stamps, and Commodities distribution programs. Respondents could also respond that they did not know, and that they did not receive food assistance. Over a third of the sample (34.5% - 138 total respondents) indicated that they received food assistance, while 65.5% received no food assistance.

In order to examine those respondents who receive food assistance by themselves those respondent who received no assistance are dropped from this analysis and only those receiving food assistance are analyzed. Table 24 is based on this group. Food stamps were received by 64.3% of all respondents who received food assistance, followed by commodities (46.4%) while WIC was received by only 12.5% of those receiving food assistance. Respondents could receive more than one type of assistance. See Table 24.

Table 24. Do you receive any of the following type of food assistance?

Gila Valley Food Security Study
Do you receive any of the following types of
food assistance?

	Count	Percent (%)
WIC	14	12.5%
Food Stamps	72	64.3%
Commodities (Food Distribution Program)	52	46.4%
Don't know	3	2.7%

Does not sum to 100% multiple responses allowed

Household Concerns with Food Supply

The last section of the survey examines food security and food deficits in a similar manner to that used by the USDA in their annual study. The questions used to evaluate scarcity are exactly the same as those in the USDA survey to allow for valid comparisons. In the survey this section is introduced by the following statement: “The next questions ask about food eaten in the household in the last 30 days, whether you were able to afford the food you needed.” This introductory statement set the stage to ask about food consumption in the last month. To reinforce the 30 day theme all the questions all questions in this section are prefaced with the following statement “In the last 30 days, did any of the following situations happen to you or your household.”

The first prompt investigates whether food scarcity was a problem. Specifically, the question asks: “We were worried whether our food would run out before we got money to buy more.” Slightly more than one-tenth of all respondents (14.4%), indicated that this statement was often true. 40% feel that they are often or sometimes in circumstance when their food runs out before they have more money to buy food again. Two-thirds of the sample do not experience this problem.

The second prompt investigates another aspect of food scarcity with the statement: “The food we bought just didn't last, and we didn't have money to get more.” 10.0% indicated that this statement was often true and 22.7% said it was sometimes true for their situation, 32.7% are concerned that the food they buy does not last and that they don't have money to get more, 67.3% of the sample does not have this concern.

The third and final prompt in this section investigates the nutritional quality of the food the respondents eat with the statement: “We couldn't afford to eat balanced meals.” One-third, 35.1% are not able to afford to eat balanced meals. The USDA defines balanced meals in their My Plate Program. www.usda.gov/media/blog/2017/09/26/back-basics-all-about-myplate-food-groups. Overall, 64.9% of the respondents are able to afford to eat balanced meals. See Table 25.

Table 25. Food security issues occurring to your household in the last 30 days?

Gila Valley Food Security Study
In the last 30 days, did any of the following situations happen to you or your household?

	Often True	Sometimes True	Never True
We were worried our food would run out before we got money to buy more	14.4%	25.6%	60.0%
The food we bought just didn't last, and we didn't have money to get more	10.0%	22.7%	67.3%
We couldn't afford to eat balanced meals	13.3%	21.8%	64.9%

Household Adaptions to Food Scarcity

While the previous three prompts dealt with household concerns with food supply, the following five questions concern household adaptions to food scarcity. The first question asked respondents whether food scarcity was a problem. The question asks: “Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?” One fifth of all respondents (21.3%), indicated that they cut the size of their meals, or skipped meals because there was not enough money for food, while three-fourths (76.8%) did not have that concern. A small percent (2%) did not know.

If respondents indicated on the last question that they had skipped meals because there wasn't enough money for food, they were asked how many days they had skipped meals. The average (mean) number of days that meals were skipped was 7 days, while the median was 4 days without food. See Table 26.

Table 26. how many days did you or other adults cut the size or skip meals because there was no money for food

Gila Valley Food Security Study
If yes, how many days did you or other adults cut the size or skip meals because there was no money for food?

	Count	Percent (%)
1	4	5.3%
2	7	9.2%
3	25	32.9%
4	5	6.6%
5	8	10.5%
7	6	7.9%
8	1	1.3%
10	5	6.6%
14	1	1.3%
15	6	7.9%
20	4	5.3%
30	4	5.3%
Total	76	100.0%

Average days cut size or skipped meals = 7 days

Median days cut size or skipped meals = 4 days

The second question in this set asks: “Did you ever eat less than you felt you should because there wasn't enough money for food.” One-fifth (23.1%) that they eat less because there was not enough money to buy food. Most (62.4%) did not have that problem while a much larger percent than the previous question answered that they did not know (14.5%).

The third question asks: “Were you ever hungry but didn't eat because there wasn't enough money for food?” Fewer respondents (17.0%) indicated that they were hungry because they did not have enough money for food. More than half 67.9%, did not go hungry because there was not enough money for food, 15.0% did not know.

The fourth question in this group asks: “Did you lose weight because there wasn't enough money for food?” Almost 1 in 10 respondents 9.0%, indicated that they lost weight because there was not enough money for food, while this was not a problem for 74.7% of respondents, and 16.3% did not know.

The final question asks: “Did you or any other adults in your household ever not eat for a whole day because there wasn't enough money for food?” Almost 1 in ten persons or 8.0% of respondents indicated that they did not eat for a whole day because there was not enough money for food. A majority, 76.4% of the sample did not have this problem while 15.5% did not know. See Table 27.

Table 27. Household adaptations to food scarcity?

Gila Valley Food Security Study			
In the last 30 days, did any of the following situations happen to you or your household?			
	Yes	No	Don't know
Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?	21.3%	76.8%	2.0%
Did you ever eat less than you felt you should because there wasn't enough money for food?	23.1%	62.4%	14.5%
Were you ever hungry but didn't eat because there wasn't enough money for food?	17.0%	67.9%	15.0%
Did you lose weight because there wasn't enough money for food?	9.0%	74.7%	16.3%
Did you or any other adults in your household ever not eat for a whole day because there wasn't enough money for food?	8.0%	76.4%	15.5%

If respondents indicated on the last question that had not eaten for a whole day because there was no money for food, they were asked how many days they had gone without food. The average (mean) number of days going without food in 30 days was 4 days, while the median was 3 days without food. See Table 28.

Table 28. How many days did you not eat for a whole day because there wasn't enough money for food?

Gila Valley Food Security Study
If yes how many days did you ever not eat for a whole day?

	Count	Percent (%)
1	2	6.3%
2	3	9.4%
3	15	46.9%
4	3	9.4%
5	2	6.3%
7	2	6.3%
10	1	3.1%
14	1	3.1%
15	1	3.1%
20	2	6.3%
Total	32	100.0%

Average days did not eat for a whole day= 4 days

Median days did not eat for a whole day = 3 days

Indicators of Food Security in the Gila Valley

This concludes the analysis of the survey data collected. The next section of the study will examine the characteristics of those who are defined by the United States Department of Agriculture (USDA) “Adult 10-Item Survey” as having low or very low food security compared to those who have marginal or high food security among adults. The USDA defines the ranges of food security as:

- High food security: no reported indications of food-access problems or limitations.
- Marginal food security: One or two reported indications – typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake.
- Low food security: reports of reduced quality, variety, or desirability of diets. Little or no indication of reduced food intake.
- Very low food security: reports of multiple indications of disrupted eating patterns and reduced food intake.

Household food security status is determined by taking the ten item survey questions and combining them to indicate the level of food insecurity experienced in a household. Each question response is identified as negative, affirmative, or missing an assigned code. The codes are added and equate to a value on the household food security scale that spans from zero to 10. The range of values on scale equate to a food security status. The USDA points out that “In interpreting the scale, it is important to remember that what it measures the sufficiency of household food as directly experienced by household members as a group, not necessarily the condition of any particular person in the household and not necessarily the nutritional adequacy of diets as a nutritionist would measure it.” (USDA, 2017).

In order to code responses the following protocol is used for all the questions, affirmative responses such as “often true,” or “sometimes true,” and all “yes,” responses are coded 1, and all “never true” and “no” are coded to 0. The exception is for the variables of skipped meals days, and not eat for a whole day, where 3 days or more are coded 1, less is coded 0. The additive results for example if all questions score 1, is 10 which corresponds to very low food security.

Using the above coding system the ten questions were scored and combined to yield raw scores for the USDA food security status level. The majority of the sample (53.9%) have a zero score indicating a high food security level among adults, a further 15% of the sample score between 1 and 2 for marginal food security. Low food security and very low food security respondents account for 15.5% respectively of the sample. See Table 29.

Table 29. USDA Food Security Status Level Raw Scores

Gila Valley Food Security Study
USDA Food Security Status Level Raw Scores

	Count	Percent (%)
Zero High food security among adults	215	53.9%
1-2 Marginal food security among adults	60	15.0%
3-5 Low food security among adults	62	15.5%
6-10 Very low food security among adults	62	15.5%
Total	399	100.0%

In some food security studies, the food security status of the first two categories (high and marginal) are combined and described as food secure and the latter two (low and very low) are described as food insecure. This combination will be used in this report and can be found in Table 30. Almost one-third, 31.1% of all respondents in the survey are classified as being food insecure. See table 30. <https://www.feedingamericaaction.org/the-impact-of-coronavirus-on-food-insecurity/>

Table 30. USDA Food Security Status Combined

Gila Valley Food Security Study
USDA Food Security Status Combined

	Count	Percent (%)
Food secure	275	68.9%
Food insecure	124	31.1%
Total	399	100.0%

Demographic Comparison Food Secure and Food Insecure Respondents

The remainder of this report will examine and compare the characteristics of the food insecure and the food secure.

The largest percentage of food insecure residents are found in Safford (65.8%), followed by Thatcher (11.7%) and Pima (10.8%). Almost 9 out of every 10 households represented in the sample who are food insecure live in one of these three communities. See Table 31.

Table 31. Food security status by where do you live?

Gila Valley Food Security Study
Food security status by where do you live?

	Food secure Percent (%)	Food insecure Percent (%)
Safford	59.9%	65.8%
Thatcher	20.4%	11.7%
Pima	8.9%	10.8%
Central	2.2%	1.7%
Duncan	2.2%	0.0%
Morenci	1.1%	1.7%
Solomon	1.0%	1.8%
San Carlos	1.0%	0.8%
Fort Thomas	1.0%	1.8%
Bylas	0.9%	0.8%
Clifton	0.9%	0.9%
Turkey Creek	0.0%	0.9%
Peridot	0.0%	0.9%
Claypool	0.5%	0.0%
Total	100.0%	100.0%

Food insecure respondents differ from the food secure in terms of household size. They tend to have larger households from three persons to six to ten persons. The greatest difference is in the larger households where 16.9% of food insecure households have between six and ten members when compared to the food secure where 11.8% of households are between six and ten persons. See Table 32.

Table 32. Food security status by how many people live in your household?

Gila Valley Food Security Study
Food security status by how many people live in your household?

	Food Security Status	
	Food secure	Food insecure
	Percent (%)	Percent (%)
One person	15.8%	17.7%
Two people	35.7%	18.5%
Three people	12.9%	16.9%
Four people	13.2%	16.9%
Five people	10.7%	12.9%
Six to ten people	11.8%	16.9%
Total	100.0%	100.0%

There are few differences between the groups for gender. The possible exception is a slightly larger percentage of women in the food insecure group. See Table 33.

Table 33. Food security status by gender?

Gila Valley Food Security Study
Food security status by gender

	Food Security Status	
	Food secure	Food insecure
	Percent (%)	Percent (%)
Male	27.1%	25.9%
Female	72.9%	74.1%
Total	100.0%	100.0%

With respect to age, food secure respondents are older, average (mean) age of 62.6 years, while food insecure respondents are younger than average (mean) age of 57.8 years. See Table 34.

Table 34. Food security status by age?

Gila Valley Food Security Study
Food security status by what is your age?

	Food secure Percent (%)	Food insecure Percent (%)
18 and under	1.3%	0.9%
19 - 25 years	2.6%	1.8%
26 - 30 years	2.2%	3.6%
31 - 35 years	3.4%	6.3%
36 - 40 years	4.3%	5.4%
41 - 45 years	4.7%	7.2%
46 - 50 years	5.6%	5.4%
51 - 55 years	8.6%	13.5%
56 - 60 years	12.1%	9.9%
61 - 65 years	9.5%	11.7%
66 - 70 years	7.3%	11.7%
71 - 75 years	9.5%	6.3%
76 years and older	28.9%	16.2%

77.3% of food secure respondents are White/Caucasian as compared to 73.2% of food insecure respondents are White/Caucasian. Food insecure respondents are significantly more likely to identify as Hispanic/Latino (39.3%), than the food secure group 25.6%** . When differences between two groups is statistically significant at the .05 level the significant statistic will be marked as **. There are also slightly more American Indian/Alaskan Native in the food insecure group. See Table 35.

Table 35. Food security status by ethnicity?

Gila Valley Food Security Study
Food security status by what is your ethnicity?

	Food Security Status	
	Food secure	Food insecure
	Column N %	Column N %
White/Caucasian	77.3%	73.2%
Hispanic/Latino	25.6%	39.3%
American Indian/Alaska Native	3.4%	4.5%
Black/African American	0.8%	1.8%
Don't know	0.8%	1.8%
Asian	0.8%	0.0%
Hawaiian/Pacific Islander	0.8%	0.0%

Does not sum to 100% because of multiple responses

There are significant differences between groups for employment status. Food insecure respondents are less likely to be employed (46.9%), and far more likely to be unemployed (44.2%). The unemployed differences are statistically significant at the .05 level for the differences between the groups for those who are unemployed. Food insecure households are also statistically more likely to have full time homemakers/stay at home parents (23.9%) compared to 14.6%** . These differences are also statistically significant at the .05 level.

Food secure respondents are statistically more likely to be employed (61.9%), or retired (42.3%) than food insecure respondents**. It would appear from this data that food insecurity is strongly related to employment. The fact that there are fewer retirees in the food insecure group may also indicate that food security has more impact on the working poor. See Table 36.

Table 36. Food security status by employment?

Gila Valley Food Security Study
Food security status by employment

	Food Security Status	
	Food secure Column N %	Food insecure Column N %
Currently employed	61.9%	46.9%
Currently unemployed	9.6%	44.2%
Retired	42.3%	29.2%
Student	19.2%	16.8%
Full time homemaker/stay at home parent	14.6%	23.9%

Does not sum to 100% multiple responses allowed

There are a number of significant differences between the two groups when considering the highest level of education the respondents had completed. Food insecure respondents are statistically more likely to have the lowest level of education, 16.1% have some high school compared to 4.2% for food secure respondents**. Food secure respondents are statistically more likely to have completed a college degree (51.3%) when compared to the food insecure group (24.1%)**. There are no statistically significant differences between those with vocational/trade school certificates, or some college, no degree. See Table 37.

Table 37. Food security status by highest level of education you have completed?

Gila Valley Food Security Study
Food security status by what is the highest level of education you have completed?

	Food secure Percent (%)	Food insecure Percent (%)
Some high school	4.2%	16.1%
High school graduate / GED	16.5%	23.2%
Vocational / Trade school certificate	3.4%	4.5%
Some college, no degree	24.6%	32.1%
Completed a college degree	51.3%	24.1%
Total	100.0%	100.0%

There is an established correlation between level of education and household income. Food insecure respondents have lower levels of education as well as low annual incomes. Food insecure respondents are 3 times as likely to make less than \$30,000 annually (62.2%) compared to 24.7% food secure respondents.** Similarly, they are almost twice as likely to make between \$30,000 to \$49,999 (28.8%) compared to 16.0% for food secure respondents.** The food secure group is almost twice as likely (17.3%) to make between \$50,000 and \$69,999.** See Table 38.

Table 38. Food security status by annual household income?

Gila Valley Food Security Study
Food security status by what best describes your
annual household income before taxes?

	Food secure Percent (%)	Food insecure Percent (%)
Less than \$30,000	24.7%	62.2%
\$30,000 - \$49,999	16.0%	28.8%
\$50,000 - \$69,999	17.3%	9.0%
\$70,000 - \$89,999	14.3%	0.0%
\$90,000 - \$109,999	10.4%	0.0%
\$110,000 or more	17.3%	0.0%
Total	100.0%	100.0%

Comparison of Shopping Behavior and Food Choice for Food Secure and Food Insecure Respondents

There is little difference between the food secure and the food insecure in terms of how far they have to travel to make basic household purchases. See Table 39.

Table 39. Food security status by how far do you travel for basic household food purchases?

Gila Valley Food Security Study
Food security status by how far do you have to travel for basic household food purchases?

	Food secure Percent (%)	Food insecure Percent (%)
Less than 5 miles	65.3%	61.1%
Between 6 and 10 miles	23.6%	25.9%
Between 11 and 15 miles	6.5%	8.3%
Between 16 and 20 miles	1.4%	0.9%
Between 21 and 25 miles	0.5%	0.9%
More than 25 miles	2.8%	2.8%
Total	100.0%	100.0%

There are a few differences between the food secure and the food insecure in terms of the community where they do their major food shopping. The food insecure group is more likely to shop in Safford (93.4%) than are the food secure group, 83.6%.** On the other hand the food secure group is more likely to shop in Thatcher (50.4%), compared to the food insecure group (35.2%).** See Table 40.

Table 40. Food security status by in what community do you do your major food shopping?

Gila Valley Food Security Study
Food security status by in what community do you do your major food shopping?

	Food Security Status	
	Food secure Percent (%)	Food insecure Percent (%)
Safford	83.6%	93.4%
Thatcher	50.4%	35.2%
Tucson	9.9%	6.6%
Other	4.2%	1.6%
Morenci	1.5%	4.1%
Globe	1.9%	1.6%
Duncan	1.5%	0.0%
Clifton	0.8%	0.8%
Miami	0.4%	0.8%
Peridot	0.8%	0.0%
Claypool	0.0%	0.8%
San Carlos	0.4%	0.0%
Ft. Thomas	0.0%	0.8%
Bylas	0.0%	0.0%

Does not sum to 100% multiple responses allowed

There are a few differences between the food secure and the food insecure in terms of which shops they buy food supplies from. The differences are probably driven by price and the ability to stretch the food dollar. Both groups utilize Walmart the most, but food secure respondents use Safeway (74.2%) even more than they use Walmart. On the other hand food insecure respondents are less likely to use Safeway (59.7%), and more likely to use the Food Pantry (70.2%). It should be noted that the Food Pantry may have had a such a high response because it was a survey site. Food insecure respondents are twice as likely (31.5% to use Chain Dollar Stores, than are the food secure group, 15.9%. Finally the only other significant difference between the groups is that food secure respondents are twice as likely (21.6%) to shop Online than are the food insecure, 11.3%.** While not statistically significant, the food insecure are more likely to use a convenience store/gas station to purchase food supplies (13.7%) than the food secure, 8.0%. See Table 41.

Table 41. Food security status by where do you shop for food supplies locally?

Food security status by where do you shop for food supplies locally?

	Food Security Status	
	Food secure	Food insecure
	Percent (%)	Percent (%)
Walmart	72.3%	75.8%
Safeway	74.2%	59.7%
Basha's	68.9%	58.9%
Food Pantry	17.4%	70.2%
Chain Dollar Stores	15.9%	31.5%
Online	21.6%	11.3%
Local non-chain supermarket	13.6%	17.7%
Local farmers market/co-op	9.8%	14.5%
Convenience Store/Gas Station	8.0%	13.7%

Does not sum to 100% multiple responses allowed

In this study, the food insecure spent more on food monthly (\$392), than did the food secure \$382. While this does not appear to be a large difference and is not statistically significant, it is nonetheless interesting and could be related to household size. Both groups spend about the same proportionately until they get to \$501 to \$600 and then the groups diverge. See Table 42.

Table 42. Food security status by average amount you spend monthly on groceries?

Gila Valley Food Security Study
Food security status by what is the
average amount you spend a month on
groceries for your household?

	Food secure Percent (%)	Food insecure Percent (%)
Less than \$100	10.9%	16.8%
\$101 to \$200	17.9%	20.4%
\$201 to \$300	22.9%	22.1%
\$301 to \$400	15.9%	19.5%
\$401 to \$500	12.9%	11.5%
\$501 to \$600	8.5%	8.0%
\$601 to \$700	1.5%	0.9%
\$701 to \$800	4.5%	0.0%
\$801 to \$900	1.5%	0.0%
\$901 to \$1,000	1.5%	0.9%
\$1,000 or more	2.0%	0.0%
Total	100.0%	100.0%

The final comparison in this series looking at the two groups for the top determinants of what food they purchase. Good price for the amount you get (overall cost) was the most important for both groups who rated it highly 78.3% for the food secure and 86.0% for the food insecure. Health and nutrition was also a strong determinant for both groups, with the food secure (55.9%) edging out the food insecure 53.7%. The significant differences between the groups emerges for the food secure in terms of this groups ability to make or afford choices. The food secure are statistically more likely, 52.0% to base a purchase decision on habit or taste and twice as likely to choose a favorite brand (34.6%) than are the food insecure (15.7%).** On the other hand the food insecure are statistically more likely to choose ease of preparation, 38.0% compared to 23.6% for food secure.** Unfortunately, the food insecure are also more likely to succumb to pressure from children and family 14.0%, compared to 5.1% for the food secure. See Table 43.

Table 43. Food security status by what are the top three things that determine what food you purchase?

Gila Valley Food Security Study
Food security status by what are the top three things that determine what food you purchase?

	Food secure Percent (%)	Food insecure Percent (%)
Good price for the amount you get (overall costs)	78.3%	86.0%
Health and nutrition	55.9%	53.7%
Habit/Taste	52.0%	38.8%
Favorite brand	34.6%	15.7%
Ease of preparation	23.6%	38.0%
Locally grown	18.5%	22.3%
Organic/naturally grown	15.0%	9.1%
Pressure from children and family	5.1%	14.0%

A Measure of Food Insecurity in the Gila Valley

The final task in this study is to estimate the scale of the problem of food insecurity in the Gila Valley. According to the research from Feeding America (2018), 15.5% of the Graham County population is food insecure, and almost one fourth of all children are food insecure (24.9%.) The food insecure population of Greenlee County is lower than that of Graham County for both measures, overall 11.6% of the population is food insecure while 19.5% of children are considered food insecure.

While not directly comparable to the USDA and Feeding America studies, the survey data paint a more dismal situation. Graham County has a higher rate of food insecurity (19.3%) than measured by Feeding America, while Greenlee and Gila counties are far higher than the comparable Feeding America statistics. The fact that almost one-fifth of Graham County respondents are food insecure is troubling. Similarly, higher percentages of food insecurity in both Greenlee and Gila counties are also a cause for concern.

In order to measure the level of food insecurity in this survey sample, total households are derived from question 2 on the survey “How many people live in your household?” Since every survey unit is a household, there are 399 households in the sample, distributed between Gila (138 household), Graham (228 households), and Greenlee County (33 households). The household are then multiplied by the percentage of food insecure households in each specific county, obtained from the survey. The food insecure households are then converted to individuals by multiplying by the average household size (3.23) for the county found in the survey.

Based on the survey sample southern portion of Gila County has an estimated 154 food insecure individuals, followed by Graham County with an estimated 106 food insecure individuals. Greenlee County has an estimated 34 food insecure individuals based upon the survey data. These numbers are not large, however they indicate that 30.5% of all households in the sample are food insecure. According to the ZCTA data in Table 4, there are over 16,000 households in the three county region. While this study can only speak about the sample the potential exists for comparative levels of food insecurity at the overall regional level. See Table 44.

Table 44. Estimated population of households and individuals who are food insecure in the Gila Valley based on survey

	Total Households	% of households that are food insecure	Total food insecure households	Total food insecure Individuals
Gila	138	46.4%	64	154
Graham	228	19.3%	44	106
Greenlee	33	42.9%	14	34
Total households	399	36.2%	122	293

Conclusion

The study of food insecurity in the Gila Valley has found higher rates of self-reported food insecurity in the three counties than is reported the official USDA and Feeding America studies. It needs to reiterated here that one-third of respondents use the Food Pantry, possibly influencing the sample towards more food-secure households. However, respondents who utilize the Food Pantry also shop at other area food stores.

The higher levels of food insecurity experienced by households and individuals have no doubt been exacerbated by the impacts of the Covid-19 pandemic. The high levels of retirees (38%), and currently unemployed (21%) respondents in this sample are indicators of a population either on fixed incomes or dependent on state benefits. More than half the sample 57% are currently employed, however 26% of these employed respondents receive some form of food assistance, mostly food stamps (12%), and WIC (6%). While these numbers may not be high 80% of the working respondents who are food insecure have annual incomes of less than \$49,999. It is disturbing to see that employed individuals may still have to receive supplemental food assistance. One fourth (24.8%) of those currently employed are considered to be food insecure by the standard measures used in this study.

On a positive note, more than half the sample (53.7%) of food insecure respondents indicated that health and nutrition were important in determining their food choice. However, 86%

indicated that overall cost or a good price for the amount you get, as the most important factor determining their food choice.

The study indicates that there is a looming issue with food insecurity among certain populations of the Gila Valley. While more than two-thirds (69%) of survey respondents are food secure, one-third of respondents are food insecure. This study adds impetus and urgency to the mission of organizations like Local First, and the Food Banks and the Food Pantry that are attempting to meet this populations food needs.

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